1/11/67
Enclosure with letter from HEW Secretary John Gardner to Senator Magnuson endorsing "tar" and nicotine listing on packages and in advertising.

PUBLIC HEALTH SERVICE

Technical Report on "Tar" and Nicotine

It is clear that the overall risk associated with cigarette smoking increases as the average number of cigarettes consumed per day increases (1). In the studies which have reported other measures of exposure such as pack-years, degree of inhalation, and maximum level of cigarette consumption, the same type of relationship holds.

Hammond (2) has shown that users of high "tar" and nicotine cigarettes report significantly more of the symptoms that are characteristic of cigarette smokers in general. Graham et al (3) have shown that appreciable variations in "tar" yield of cigarettes may be achieved by changing the pattern of smoking with maximum yield being obtained when puffing is concentrated toward the end of the cigarette. The effect of tobacco smoke condensate on the mouse skin has been shown by numerous investigators to be dependent on the dose of tar applied to the skin.

These findings support the existence of a dose-response relationship between exposure to cigarette smoke and the risks most clearly associated with cigarette smoking -- lung cancer, chronic obstructive pulmonary diseases, and cardiovascular diseases. Among the factors which may enter into the total exposure are numbers of cigarettes consumed, length of cigarette consumed, pattern of smoking (relative concentration of puffing at beginning, middle, or end of cigarette), frequency and depth of inhalation, and concentration of tobacco smoke which enters the smoker's mouth. The concentration of particulate matter

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in the mainstream of smoke is reflected in the measurement of the so-called "tars" in tobacco smoke.

The epidemiologic evidence on the effect of cigarette smoking on health is based largely on numbers of cigarettes consumed daily as the measure of exposure. That the degree of risk correlates as high as it does with numbers of cigarettes probably reflect the fact that the various measures of exposure noted above tend to be positively inter-correlated. Those individuals who smoke many cigarettes, and also, who inhale frequently and deeply, take more puffs, use higher "tar" and nicotine content cigarettes, and so on.

Wynder and Hoffmann (4) have shown that the tumorigenicity of cigarette smoke can be reduced by alteration in the cigarette which reduces the "tar" and nicotine content. They use the term "indicator" for "tar" and nicotine content or other measures which reflect this type of gross relationship lacking the identification of specific agents which are responsible for the effect. Bock, Moore, and Clark (5) have independently shown a similar variation in carcinogenic activity of tobacco "tar" obtained from different types of cigarettes.

The ad-hoc group of scientists which reviewed and discussed these data recently at the invitation of the Surgeon General concluded that:

1. The preponderance of scientific evidence strongly suggests that the lower the "tar" and nicotine content of cigarette smoke, the less harmful would be the effect.

2. We recommend to the Surgeon General that action be encouraged which will result in the progressive reduction of the "tar" and nicotine content of cigarette smoke.

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This judgment was arrived at with full recognition of the following:

1. It is possible for a cigarette to be altered in such a way that its "tar" and nicotine content is reduced but certain other harmful effects, for example, the effect of the gaseous phase may be increased. Although this is a theoretical possibility, there is no evidence that this has occurred to any serious degree.

2. The potential benefit to the individual consumer who might shift to a lower tar and nicotine cigarette would be negated if this shift were accompanied by an increase in the number of cigarettes consumed, or in the length of each cigarette used. There is evidence that, by-and-large, this does not occur; that the shift to low "tar" and nicotine cigarettes tends to be accompanied by the same level of consumption or an even lower level rather than by an increased consumption (6,7).

3. Promotion of a low "tar" and nicotine cigarette might lull the consumer into believing that he could smoke this kind of cigarette without <u>any</u> accompanying risk. The presence of the warning label on the package, control over the advertising statements which are permitted, and the continuing educational efforts of public health agencies on this subject should minimize this likelihood.

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November 25, 1966

Source: https://www.industrydocuments.ucsf.edu/docs/xhd0000

## References


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2. Hammond, E. C., "Smoking In Relation To Physical Complaints," Arch. Environ. Health, 3:146-64, 1961.

3. Graham, S., et al, "Variations and Amounts of Tobacco "Tar" Retrieved from Selected Models of Smoking Behavior Simulated by Smoking." Cancer Research, 23:1025-30, 1963.

4. Wynder, E. L., Hoffmann, D., "Reduction of Tumorigenicity of Cigarette Smoke; An Experimental Approach." Journal of the American Medical Association, 192:88-94, 12 April 1965.

5. Bock, F. G., et al, "Carcinogenic Activity of Cigarette Smoke Condensate." Journal of National Cancer Institute, 34:481-93, April 1965.

6. Horn, D., Hammond, E. C., Special Report To The Advisory Committee on Smoking and Health Of The Surgeon General Of The United States Public Health Service (unpub.).

7. Hammond, E. C., Garfinkle, L., The Influence of Health on Smoking Habits, National Cancer Institute Monograph 19, Bethesda, Maryland, P. 269-85, 1966.


✓ See the following two documents, "Congressional Record," 7/27/66 and letter of invitation from the Surgeon General, 5/9/66, regarding the ad hoc group of scientists to review the significance of tar and nicotine.

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